

CLAIMS

1. Protective structure for vehicles, characterised in that it comprises a front cross member (17A) connected to lateral side members (22), featuring
5 at least one first absorber element or buffer (16), connected externally after the cross member (17A) on the bumper side of the vehicle.

2. Protective structure for vehicles as in claim 1, characterised in that, inside said cross member
10 (17A), at least one second absorber element (25) is present, increasing the collapsing force of the cross member and therefore the energy absorbed and, simultaneously, limiting the overall dimensions of the entire structure.

15 3. Protective structure for vehicles as in claim 1, characterised in that said cross member (17A) has a physical-geometrical structure and weight modified with respect to traditional type cross members.

4. Protective structure for vehicles as in claim
20 2, characterised in that said first (16) and second buffer (25) are made of materials with characteristics such as to obtain pressures of $5-30 \text{ N/mm}^2$ corresponding to a crushing of 50%.

5. Protective structure for vehicles as in claim
25 2, characterised in that said first (16) and second

buffer (25) comprise absorbing materials such as extruded thermoplastic honeycomb, honeycomb made of aluminium, polyurethane foam, foamed polypropylene, rigid or semi-rigid polyurethane or extruded polyurethane.

6. Protective structure for vehicles as in claim 1, characterised in that said cross member (17A) is made of metal or plastic and is flat or shaped, produced from an extruded linear profile.

10 7. Protective structure for vehicles as in claim 1, characterised in that said cross member (17A) is made of metal or plastic and is flat or shaped, produced by moulding and welding.